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STATEMENT

USCGC Healy WAGB-20 Dive Mishap

[redacted]

My assignment in [redacted] to the USCGC HEALY. I am permanently stationed at ISC Seattle. My duties are primarily as a [redacted] to the Healy and my work consists of Planning, technical support and [redacted] coordination between the ship and yearly scheduled [redacted]

The final portion of Healy's science year included two science sections, both scheduled to take place over a period of two months from September through October. Neither section had scheduled diving operations as a requirement, although the second section did have a requirement for standby divers. Included are four enclosures describing HLY-06-01, HLY-06-02, HLY-06-03 and HLY-06-04. Each include a description of the science to be performed along with the objectives and operations specifics. In addition there is a picture representation of each.

My association regarding the dive team on the Healy is as [redacted] represented in his statement. My only interaction with the diving team was on a scientific basis in preparation for the yearly deployment.

[redacted]

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More detailed information for these Healy missions is posted at http://www.icefloe.net/reports_healy.html

Cruise: HLY-06-01
Chief Scientist: [redacted] University of Tennessee Knoxville
Dates: 07 May 2006 -05 Jun 2006
Ports: Dutch Harbor to Dutch Harbor

Bakcground: This cruise was funded by the National Science Foundation to investigate a mechanism by which sea-ice change might affect the very productive, benthic-dominated food webs on shallow arctic shelves - expansion of the ranges and numbers of mobile benthic predators (SPEI, groundfish, snow crabs, sea stars, and gastropods) owing to increased temperature of bottom water.

[redacted]s a long time user of USCG icebreakers and has been using the Polars for many years to study the St. Lawrence Island Polynya (SLIPP) which she began studying almost two decades ago. HLY0601 was essentially a continuation of the SLIP.

Objectives: The study area wass located between St. Lawrence Island and St. Matthew Island (61-64 deg. N), and between 170 to 180 deg. W (See Figure 1).
The overall sampling objectives were:

1. Helicopter surveys for SPEI peridodically during the cruise, benthic trawling, and benthic samping with grabs and cores.
2. This effort will require access to satellite ice information real-time, CTD/rosettee sampling, and benthic sampling with equipment outlined above.
3. Continue a long-term (1950-2005) record of benthic communities in this area. This effort will require collection of a suite of oceanographic data including 1) CTD/rosettee for T/S and water samples, 2) zooplankton net deployment, benthic equipment deployment, including cores, grabs and trawls.

Operatons: Over-the-side deployment of oceanographic sampling equipment was quite intensive with 118 stations occupied during this leg. CTD/rosette, zooplankton net, van Veen grab, HAPs multicorer, and an otter trawl were used. Field observations and sampling also utilized the onboard helicopter. Diver services were not part of the requirements for field operations.

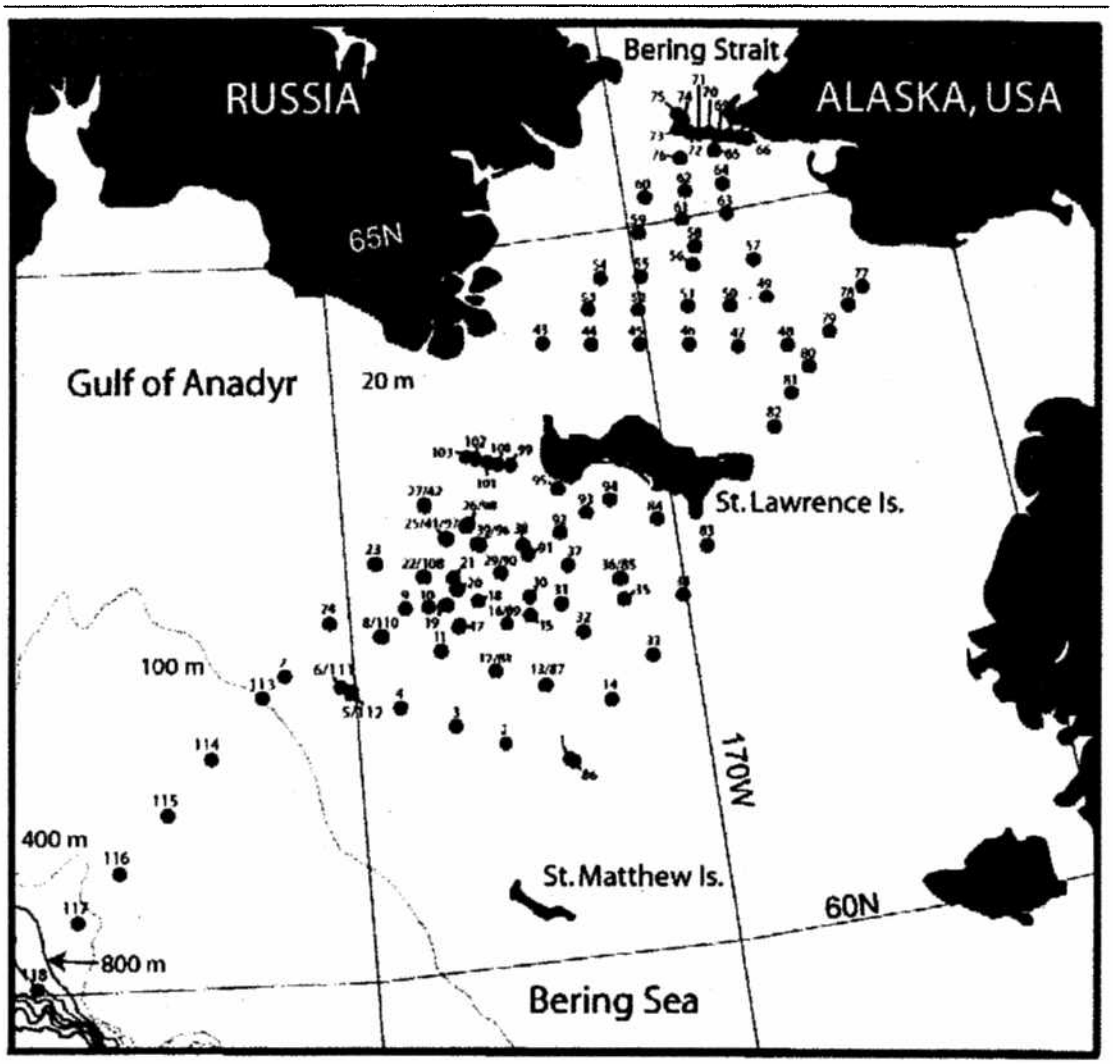

Figure 1. HLY0601 occupied 118 stations in the Bering Sea.

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Cruise: HLY-06-02
Chief Scientist: [redacted] Univ. of Texas at Austin, Inst for Geophysics
Dates: 18 Jul 2006- 28 Aug 2006 (Actual was 18 Jul to 18 Aug)
Ports: Barrow to Nome

Background: This program was funded by the NSF. This program was an off shoot of previous work conducted by the U.S. Geological Survey aboard the Polar Star titled "Seismic reflection and refraction data acquired in Canada Basin, Northwind Ridge and Northwind Basin, Arctic Ocean in 1988, 1992 and 1993". The report from this study is posted on the web at http://pubs.usgs.gov/of/2004/1243/intro.html. These field programs studied the geologic framework and tectonic history of the Arctic Ocean Basin north of Alaska.

Objectives: The plan was to collect seismic refraction and reflection data along and over Chukchi Borderland including Northwind Ridge and Chukchi Plateau as well as across and over Mendeleev Ridge. We plan to do some piston coring, up to 20 m but assume most cores will be 10 m or so. The objective is to determine the crustal structure of the Chukchi Borderland and to contrast that structure with the Mendeleev Ridge. If time and ice permit, we hope to tie over seismic work into the commercial well, Popcorn #1 at ~72?N, 165.8?W as we return to Nome.

Operations: Helicopter deployment of Sea Ice Seismometers (SIS) onto the pack ice every 10 km to record the seismic refraction required very intense helicopter usage on this cruise which was impacted by the weather and adverse flying conditions. A summary of the helicopter usage is posted at http://www.icefloe.net/hly0602/Helo/helologindex.html. Nine piston cores and eight gravity cores were taken during the cruise. Extensive use of the Multibeam and sub-bottom sonars was used through out the cruise. Due to the ice coverage, air gun firing and seismic data collection was limited to ~55 hours along the track line. Diver services were not part of the requirements for field operations.

Figure 2. HLY0602 cruise track superimposed on the DMSP SSM/I satellite ice concentrations including coring sites (squares) and Sea Ice Seismometers (SIS, circles).

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Cruise: HLY-06-03
Chief Scientist: [redacted] Center for Coastal and Ocean Mapping University of New Hampshire
Dates: 09 Sep 2006- 08 Oct 2006
Ports: Barrow to Barrow.

Background: The cruise was funded by the National Oceanic and Atmospheric Administration (NOAA) supporting the Center for Coastal and Ocean Mapping/Joint Hydrographic Center at the University of New Hampshire. The following information was taken from http://www.ccom.unh.edu/index.php?p=116|123&page=law_of_the_sea.php. Growing recognition that implementation of United Nations Convention on the Law of the Sea Article 76 could confer jurisdiction and management authority over large (and potentially resource-rich) areas of the seabed beyond our current 200 nautical mile (nmi) limit has renewed interest in the potential for a U.S. claim. In this context, Congress (through NOAA) funded the University of New Hampshire's Joint Hydrographic Center to evaluate the content and completeness of the nation's bathymetric and geophysical data holdings in areas surrounding the nation's EEZ with emphasis on assuring their usefulness for substantiating the extension of resource or other national jurisdictions beyond the present 200 nmi limit. The initial portion of this complex study was carried out in less than 6 months and a report submitted to Congress on 31 May 2002 (http://www.ccom.unh.edu).

Following up on the recommendations made in the UNH study, Congress funded the Center (through NOAA) to collect new multibeam sonar data in support of a potential claim under UNCLOS Article 76. In 2003, Center staff participated in a 10 day Healy cruise to collect data in support of a potential law of the sea claim. The cruise focused the Chukchi Cap in the high Arctic where permanent ice cover makes the collection of detailed bathymetry very difficult. In 2004 the University of New Hampshire's Joint Hydrographic Center returned to the Chukchi Cap on USCGC Healy and, under very difficult ice conditions mapped another 100 nm of the 2500 m contour as well as a 325 sq. nm region of the margin off Barrow Alaska.

The University of New Hampshire's Joint Hydrographic Center sailed on Healy during October 2004 because the optimal time in September went to an NSF funded mooring cruise. The Center's 2005 cruise was postponed due to the NSF funded trans Arctic cruise. During the scheduling process for the 2006 Arctic summer season the University of New Hampshire's Joint Hydrographic Center was given priority and was scheduled during the optimal sea ice season for conducting multibeam surveys of the Chukchi Cap. The September 2006 cruise was subsequently canceled due to a fatal diving accident on Healy in August.

Objectives: The purpose of the 2006 cruise was to continue mapping on the Chukchi Cap in support of Law of the Sea using multibeam and subbottom sonars. This particular cruise was postponed from 2005 due to the scheduling of the NSF funded 2005 trans Arctic cruise which precluded West Arctic operations during the late summer open water maximum season. The objective was to map a small bit of the 2500 m contour that we were unable to complete in 2004 (at about 78.5 N) and then zig-zag across the slope in order to locate the foot of the slope as defined by UNCLOS Article 76. (see Figure 1)

Operations: The science party is typically small (a dozen scientists) on these cruises since most of the work is surveying with the installed Multibeam Sonar and sub-bottom profilers. Other operations may include a gravity core. Scuba diving operations were not required. Attached is the planned cruise track.

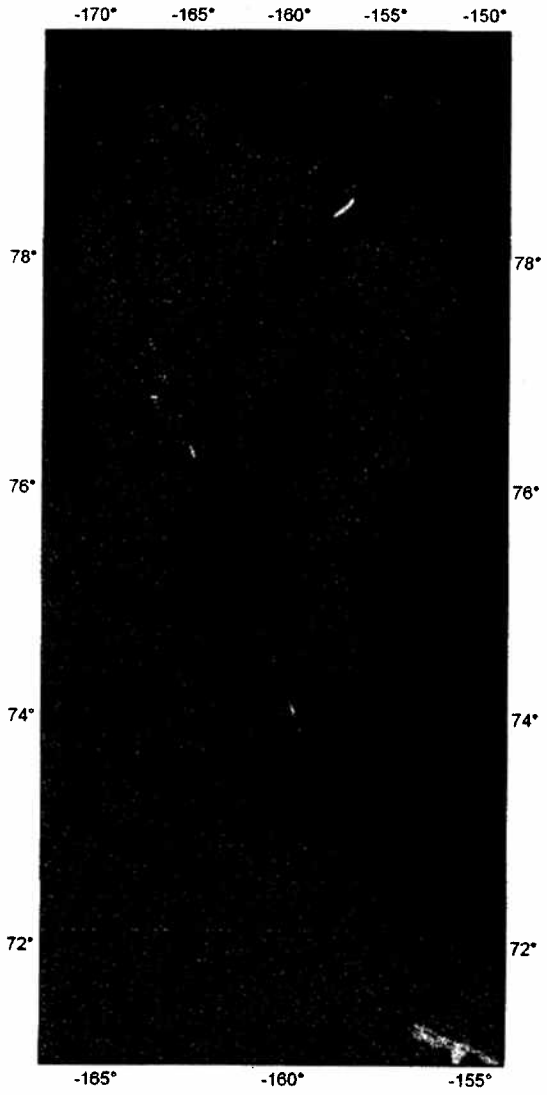

Fig 3. Proposed cruise track for the University of New Hampshire's Joint Hydrographic Center 2006 cruise on Healy which was canceled by the US Coast Guard.

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Cruise: HLY-06-04
Chief Scientist: [redacted], Woods Hole Oceanographic Institute
Date: 09 Oct 2006- 22 Oct 2006.
Ports: Barrow to Barrow

Background:
The Autonomous Underwater Vehicle testing in preparation for 2007 Gakkel Ridge exploration.

The following was modified from: http://www.whoi.edu/oceanus/viewArticle.do?id=2459

In 2001, Woods Hole Oceanographic Institution (WHOI) scientist [redacted] was part of a team that sailed on USCGC Healy to conduct the most detailed exploration to date of the Gakkel Ridge, which transects the eastern Arctic Basin and is perhaps the most enigmatic tectonic plate boundary on Earth. [redacted] and colleagues found tantalizing clues of active volcanism and ubiquitous hydrothermal venting on the Gakkel Ridge.

The 2007 mission will allow us to study Arctic vent fields for the first time. We will use a small group of purpose-buitt AUVs, each with different characteristics and equipped with statesf-the-art sensor systems. They will work in concert to study Arctic vent fields. For example, a "bloodhound" AUV (named Puma, for Plume Mapper) will be equipped with sensors that can detect tiny telltale temperature, chemical, or turbidity signals in the water. It will survey a wtde area to "sniff out" one of the hydrothermal vent plumes that [redacted] got whiffs of in 2001 and follow it back to its vent field source on the seafloor.

Once a vent is found, "hummingbird" AUVs (named Jaguar), will be deployed. These will be able to hover in place, and equipped with camera and lighting systems, high-resolution sonar, and a manipulator arm with storage canisters, they will be used for mapping, imaging, and sampling at vent sites.

Objectives: The purpose of the 2006 Healy cruise was to conduct under ice and deep water (> 3000 m) engineering trials of an Autonomous Underwater Vehicle (AUV) and tow-camera systems in preparation for a cruise to the Gakkel Ridge in 2007. Operational area of the testing was planned for the ice edge in the West Arctic at approximately 75N 165W.

Operations: Over-the-side deployment of bottom mounted transponders, AUVs and deep tow camera sled. Small boat operations for attaching tag lines when recovering AUVs. Dive operations were planned in the event of an under ice emergency recovery scenario. Multibeam and sonar data collection.

Figure 4. Visualization of the AUVs planned for testing under ice in the West Arctic during Healy's AWS06.

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